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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/655,927	09/04/2003	Mike Cogdill	200207492-1	8626

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HEWLETT-PACKARD DEVELOPMENT COMPANY
Intellectual Property Administration
P.O. Box 272400
Fort Collins, CO 80527-2400

EXAMINER

LE, TOAN K

ART UNIT	PAPER NUMBER
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2824

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	02/23/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No. 10/655,927	Applicant(s) COGDILL ET AL.	
	Examiner Toan Le	Art Unit 2824	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-25 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-25 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. ____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date ____. | 6) <input checked="" type="checkbox"/> Other: <u>East search history</u> . |

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 1-25 are rejected under 35 U.S.C. 102(e) as being anticipated by Johnson et al. (US. 6,715,014).

Regarding claims 1, 2, 18, 19, Johnson et al. disclose in Fig. 3, a circuit comprising a bus controller (in the driving source 312); a bi-direction transmission line (314) having a series dampening impedance (resistor 324) between a driver (312) and a branch point (star node which is intersected between 318 and 320) of the transmission line (see fig. 3); and a termination impedance or a parallel impedance (resistor 326) having a first end coupled to the transmission line between the dampening impedance and the branch point (see fig.3 and col. 2, lines 10-15) and a second end coupled to a termination voltage terminal (V_{tt}); the transmission line having branches (318, 320) from the branch point and coupled to memory module interfaces (see fig. 3), the branches having respective lengths between said branch point and the memory module

Art Unit: 2824

interfaces to be configured symmetrically (see fig. 3), wherein the branch point is at a point to balance signal transmission on said branches (see fig. 3).

Regarding claims 3-5, 20-22, Johnson et al. further disclose two of the branches (318, 320) being the same length, and a third of the branches being not the same length of the two of the branches (see col. 2, lines 20-23); and the circuit providing signal integrity for memory modules having a double high configuration (see col. 2, lines 54-67).

Regarding claims 6, 7, 23 and 24, Johnson et al. further disclose the branches coupling to an odd number or an even number of memory module interfaces and wherein at least one pair of branches have substantially the same length (see fig. 3 and col. 2, lines 20-23 and 35-37).

Regarding claims 8, 9 and 25, Johnson et al. further disclose the termination impedance (326) being connected to the dampening impedance (324 and see fig. 3); a receiver (in the driving source 312) coupled to the transmission line, wherein the dampening impedance (324) is between the receiver and the branch point (see fig. 3).

Regarding claims 10 and 11, Johnson et al. disclose in Fig. 3, a circuit comprising a plurality of memory modules (302-308); a data line (316-322) having a first end and a second end, said data line coupling said memory modules (see fig. 3); and a bi-direction transmission line (314) having a series resistance (324) and a parallel resistance (326) in a stub configuration; the transmission line having a first end coupled to a driver (312) and a second end connected at a point (star node, see col. 2, line 19) on the data line to balance signal transmission between said point on said data line and said first and second ends of said data line (see fig. 3).

Regarding claims 12-15, Johnson et al. further disclose the transmission line being connected at substantially the midpoint of the data line (see fig. 3); the termination impedance

Art Unit: 2824

(326) being connected to the dampening impedance (324, see fig. 3); a receiver (in the driving source 312) coupled to the transmission line, and the plurality of memory having a double high configuration (see col. 2, lines 54-67).

Regarding claims 16-17, Johnson et al. further disclose the plurality of memory modules being an even number and wherein the second end of the transmission line is connected to the data line at a point substantially midway between two memory modules closest to the mid-point of the data line (see fig. 3 and col. 2, lines 24-39); and the plurality of memory modules being an even number and wherein the second end of said transmission line is connected to the data line at a point substantially midway between two memory modules closest to the mid-point of said data line (see fig. 3 and col. 2, lines 24-39).

Conclusion

3. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Buuck et al. (US. 5,583,449) disclose a system providing capability for reducing electromagnetic interference.

Greeff et al. (US. 6,356,106) disclose active termination in a multi drop bus memory system.

Cogdill et al. (U.S. 7,054,179) disclose double high memory system.

Art Unit: 2824

Feraud et al. (U.S. 6,239,985) disclose a method and apparatus for distribution of electrical signals in a circuit board.

4. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Toan Le whose telephone number is (571) 272-1872. The examiner can normally be reached on M-F (8.00AM - 5.30PM).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richard Elms can be reached on (571) 272-1869. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

TL
February 19, 2007



ANH PHUNG
PRIMARY EXAMINER